# Technics

Turntable System

# SL-1600MK2
# SL-1610MK2

## Operating instructions

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Before operating this set, please read these instructions completely.

We want to thank you for selecting the SL-1600MK2/SL-1610MK2.
For optimum performance, we recommend that you read these instructions carefully.

# Before use

**Caution:**
Never connect the AC power plug before assembly has been completed.
Attach the dust cover last, so that assembly and adjustments can be made most conveniently.

**Note:**
The operating instructions are commonly applicable to units with cartridge and without cartridge, and also to those of different colors.
For the units without cartridge, the cartridge section of the specifications may be neglected.

## ■ Checklist of parts

| | |
|---|---|
| Turntable unit | 1 |
| Turntable platter | 1 |
| Turntable mat | 1 |
| Dust cover | 1 |
| 45-rpm adaptor | 1 |
| Balance weight | 1 |
| Auxiliary weight | 1 |
| Headshell | 1 |
| Shell weight | 1 |
| Overhang gauge (for the unit without cartridge) | 1 |

## ■ Remove the transport screws (See Fig. 2.)

Remove the four blue fixing screws and felt washers.
The screws and washers are necessary whenever you transport the unit, so store them in a safe place.

# Assembly and set-up

## ■ Installation of turntable platter

1. Place the turntable platter on the center spindle.
   **Note:**
   The rotor is connected to the underside of the turntable platter. (The magnet of the motor is attached to the turntable platter.) To maintain optimum performance, extra care should be taken to prevent adhesion of dust or iron filings to the magnet and not to damage the magnet by dropping it.
   Do not remove or loosen the screws. Should the position of the fixed magnet be altered by loosening the securing screws, the rated performance of the unit cannot be guaranteed. **(See Fig. 3.)**
2. Place the turntable mat on the platter.
   Match the protrusion on the turntable platter (prism) with the dent on the turntable mat and engage them onto the spindle. **(See Fig. 4.)**

## ■ Installation of cartridge

**(for the unit without cartridge) (See Fig. 5.)**
When you install a cartridge, refer to the operation instructions of that cartridge.
During installation, attach the stylus protector to guard the stylus tip from damage.

1. Connect the lead wires to the cartridge terminals.
   The terminals of most cartridges are color coded. Connect each lead wire to the terminal of the same color.
   **White** (L+) ..... **Left channel+**
   **Blue** (L−) ..... **Left channel−**
   **Red** (R+) ..... **Right channel+**
   **Green** (R−) ..... **Right channel−**
2. Install a cartridge to the headshell, and tighten it with screws provided with the cartridge.
   **Note:**
   Use the shell weight only for a light weight cartridge. (Less than 6.0 g.). **(See Fig. 6.)**

## ■ Adjustment of overhang

**(for the unit with overhang gauge) (See Fig. 7-1)**
1. Insert the headshell into the gauge.
2. Loosen the mounting screws and move the cartridge forward or backward until the stylus tip lines up with the edge of the gauge.
3. Tighten the mounting screws without moving the cartridge.
   **Note:**
   Your cartridge is now adjusted for lowest tracking error and minimum distortion.
   This gauge is exclusively designed for this tonearm.

**(for the unit without overhang gauge) (See Fig. 7-2.)**
The overhang of this unit is 15 mm.
Loosen the mounting screws and move the cartridge forward or backward until the distance between the stylus tip and the plug becomes 52 mm (2-3/64") as shown in the picture.
Tighten the mounting screws without moving the cartridge.
Adjust horizontal zero balance, stylus pressure and arm-lift height whenever you change the cartridge.

## ■ Installation of headshell (See Fig. 8.)

Insert the headshell into the front end of the tubular arm, and turn the locking nut clockwise (in the direction shown by the arrow "**A**"), with the headshell firmly held horizontally.

## ■ Installation of balance weight (See Fig. 9.)

Place the balance weight on the rear shaft of the tonearm.
**Note:**
In case the cartridge weight exceeds 10 g, it is necessary to fix the attached auxiliary weight over the rear shaft of the arm. **(See Fig. 10.)**
With this auxiliary weight in use, it is possible to use any cartridge whose weight is in the range of 9.5—13 g.

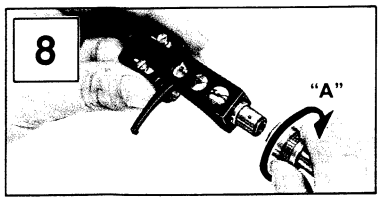
## ■ Adjustments of horizontal zero (0) balance and stylus pressure

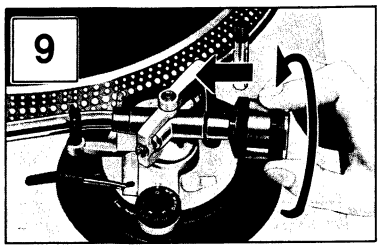
1. Remove the stylus protector, if your cartridge has a detachable one. Be careful not to touch your fingers to the stylus tip.
2. Release the arm clamp and lift the tonearm from the arm rest to free it.
3. Turn the entire balance weight clockwise (indicated by the arrow "**A**") or counterclockwise (indicated by the arrow "**B**") until the tonearm is approximately balanced horizontally (floats freely). **(See Figs. 11 and 12.)**

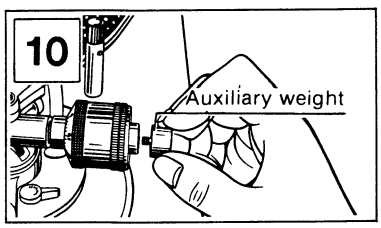
Note:
**(A)**
Excessive forward advancement of the balance weight causes the cartridge side to be lowered.
**(B)**
Excessive backward retreatment of the balance weight causes the cartridge side to be raised.
**(C)**
Upon balancing between the balance weight and cartridge, the tonearm is held horizontal.

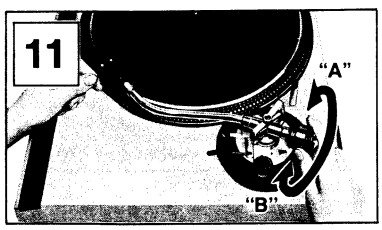
During the adjustment of the horizontal zero **(0)** balance, be careful that the stylus tip of the cartridge does not contact the turntable mat or turntable base.

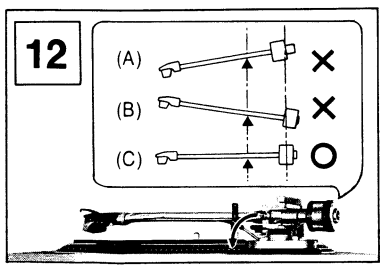
## Assembly and set-up

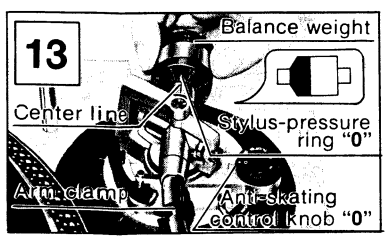


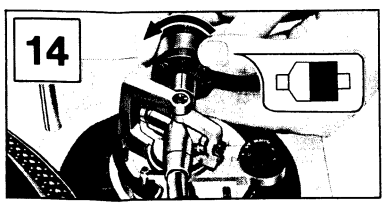



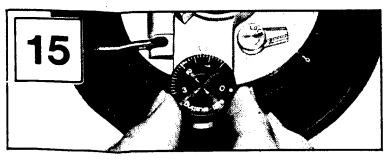



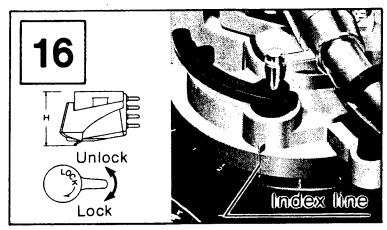



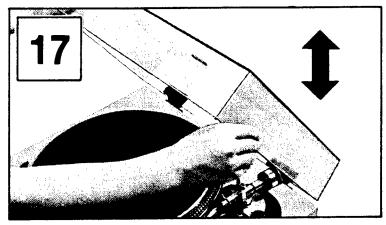



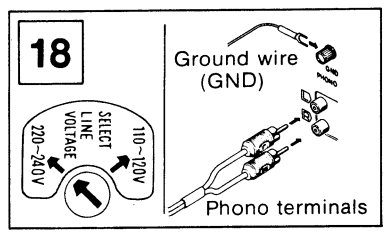



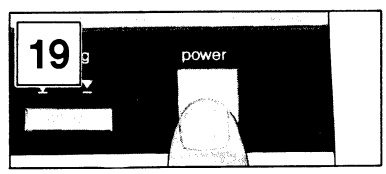



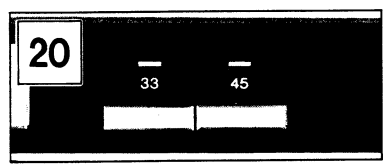



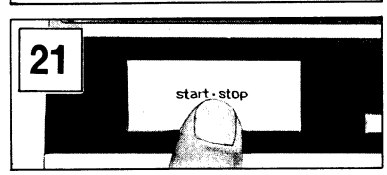



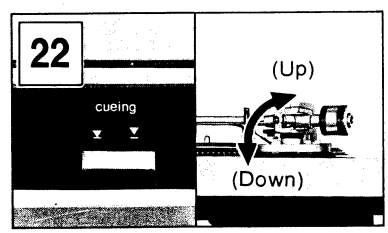



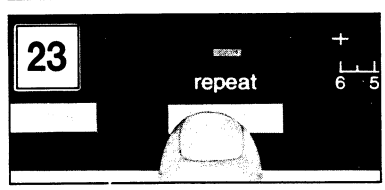

## How to operate

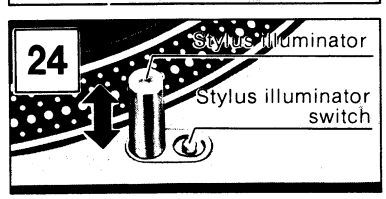


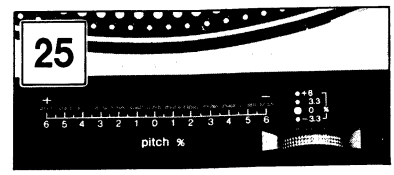



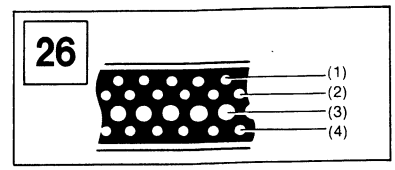



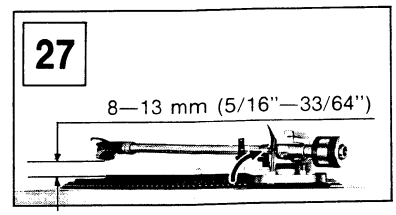



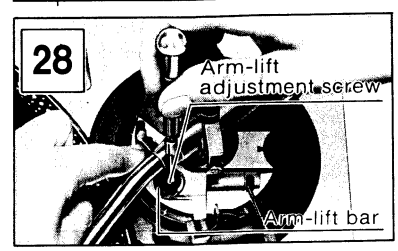



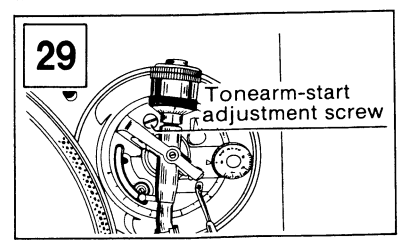

## Adjustments



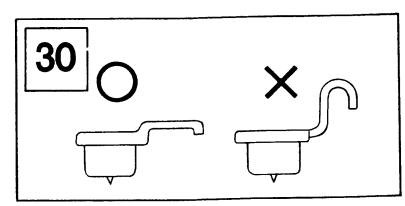



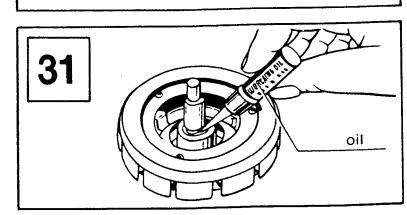



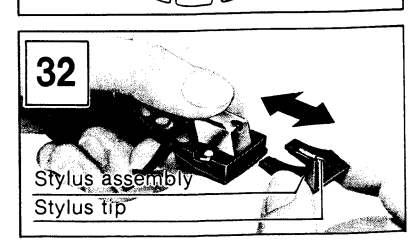




## Notes and maintenance



# Parts identification

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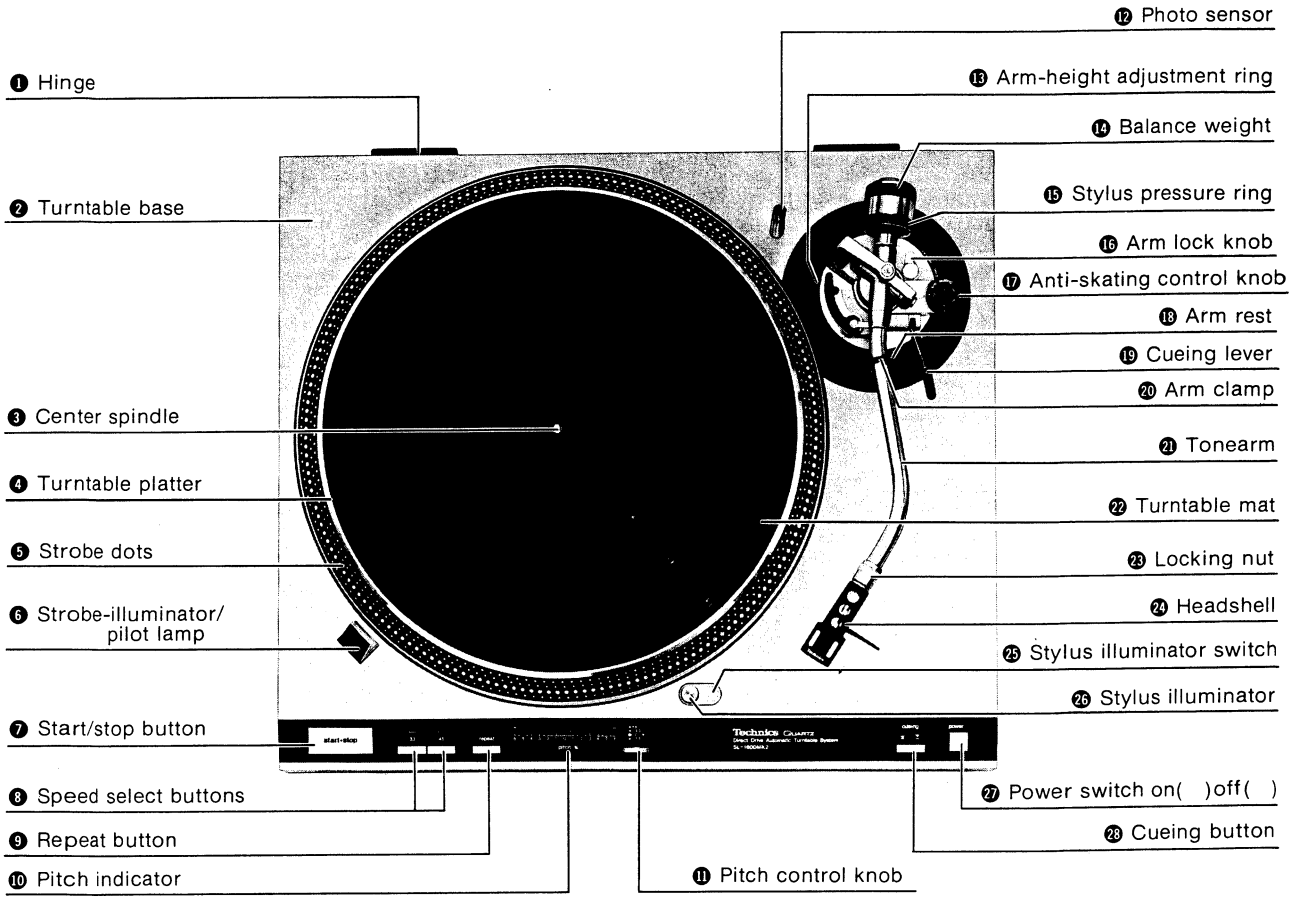


# Assembly and set-up

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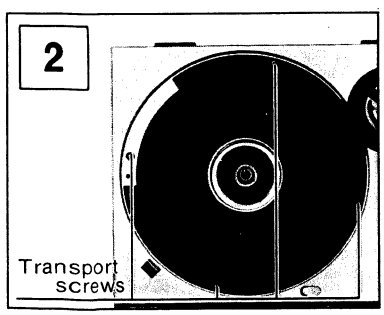


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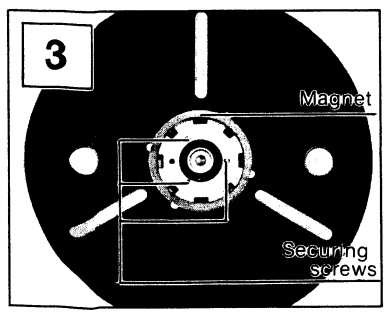


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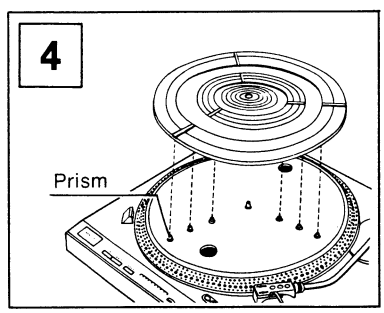


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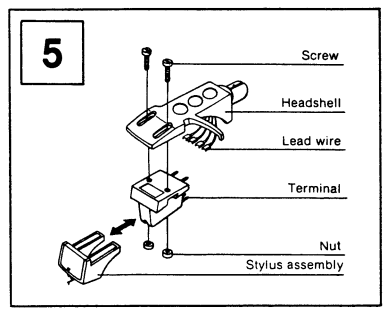


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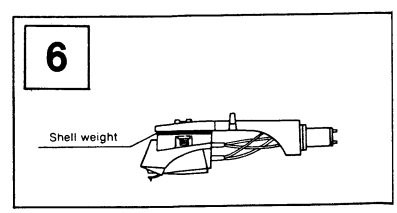
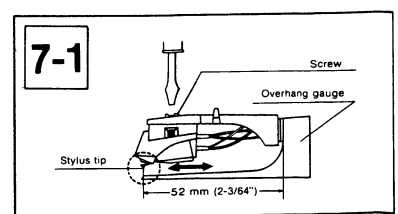
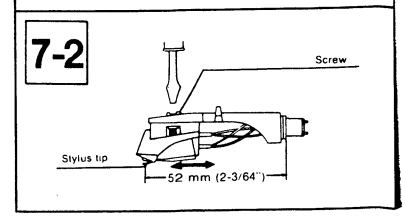



7-1




7-2



4. After the tonearm is horizontally zero **(0)** balanced, temporarily refasten the tonearm with the arm clamp.
5. Hold the balance weight stationary with one hand as shown in the picture, and rotate only the stylus-pressure ring to bring the numeral "**0**" of the ring into alignment with the center line on the tonearm rear shaft. **(See Fig. 13.)** The adjustment of the horizontal zero **(0)** balance is now completed.
6. After adjusting the horizontal zero **(0)** balance, turn the balance weight in the direction of the arrow and align to the correct stylus pressure. **(See Fig. 14.)** (Follow the cartridge manufacturer's recommendation.) As the stylus-pressure ring moves in step with the balance weight, proper stylus pressure can be selected by directly reading the graduated ring.

### ■ Adjustment of anti-skating control

Set the anti-skating control knob to the same value as the stylus pressure. **(See Fig. 15.)**

### ■ Adjustment of tonearm height (See Fig. 16.)

The height of the tonearm can be adjusted up to 6 mm, and a scale is provided on the adjust ring in 0.5 mm increments. Be sure to set the proper arm height using the adjust ring scale and referring to the table.
Before adjusting the tonearm height, unlock the tonearm lock by turning the arm lock knob. **(See Fig. 16.)**

| Height of cartridge (mm) (H) | Scale reading on the arm-height adjust ring |
|---|---|
| 15 | 0 |
| 16 | 1 |
| 17 | 2 |
| 18 | 3 |
| 19 | 4 |
| 20 | 5 |
| 21 | 6 |

For example, if the cartridge height is 17.5 mm, the arm-height adjust ring should be positioned at the intermediate location between 2 and 3 on the scale. **(See Fig. 16.)**

**Caution:**
Be sure to lock the tonearm by turning the arm lock knob in the direction indicated by the arrow after finishing the height adjustment for the tonearm. **(Refer to Fig. 16.)**

### ■ Installation of dust cover (See Fig. 17.)

Place the dust cover into position from directly above, holding it at both sides. For detaching the dust cover, be certain first to raise it as illustrated before removal.

**Note:**
Opening or closing of the dust cover during play should be avoided. This may not only cause undesired vibrations, but also result in skipping of the stylus.
If you must open the dust cover during play, do so as gently as possible.

# Placement

■ **Place the unit in a stable and horizontal position, where there is little or no vibration.**
The unit has the superior feature of double-isolator construction. For obtaining the maximum effect of this feature, place the unit in a stable, level place. In addition, be careful not to put anything under the turntable base.
Make certain that the surface on which the turntable rests is large enough to accommodate the legs fully.

■ **Locate the unit as far away from the speakers as possible and isolate the unit from sound radiation from them.**

■ **Do not install the unit where there is strong light, such as direct sunlight or spotlights, in order to prevent malfunction of the photo sensor.**

■ **Don't allow flashlights or other infrared remote control devices near the photo sensor section (within 50 cm) to avoid interference with proper automatic operation of the unit.**

■ **Do not place the unit where it is exposed to dust, moisture or heat.**

■ **Keep it in a well ventilated place.**

■ **When a radio is placed too close to the turntable and is played while the turntable is in operation, interference to AM/FM reception may result.**

# Connections

### ■ Connect the AC power plug

Connect the AC power plug to an AC wall socket.

**Caution:**
Make sure that the turntable's AC line-voltage selector is matched to your local voltage before connecting the AC power plug.
Never connect to a DC socket.
If the pre-selected voltage is different from your local voltage, turn the AC line-voltage selector with a screwdriver so that it corresponds to your local voltage.
The AC line-voltage selector is located under the turntable platter. **(See Fig. 18.)**

### ■ Connect the output terminals (See Fig. 18.)

| **Output terminals** | **Amplifier or Receiver** |
|---|---|
| **L** (White) ——→ | **L** Channel |
| **R** (Red) ——→ | **R** Channel |
| **GND** (Spade lug) ——→ | **GND** |

**Note:**
Be sure to connect the ground terminal firmly to the amplifier or receiver. If this connection is not made or is loose, a power source "**HUM**" will result.

# How to operate

### ■ Automatic play

1. Place a record on the turntable mat.
2. Push the power switch to the "**on**" position (⏝). **(See Fig. 19.)**
   The LED's (Light Emitting Diodes) at the speed select button 33 (33-1/3 rpm), the strobe-illuminator, and the pitch indicator should then be illuminated.
   **Note:**
   Since the unit has been designed to select 33–1/3 rpm automatically each time you push the power switch to the "**on**" position (⏝), push the 45 rpm speed select button if you wish to play a 45-rpm record. **(See Fig. 20.)**
3. Remove the stylus protector, if your cartridge has a detachable one and release the arm clamp.
4. Push the start/stop button. **(See Fig. 21.)**
   The turntable platter will start to rotate. As the record size is automatically detected by a photo sensor, the tonearm will move automatically over the lead-in groove and descend slowly onto the record to start playing the record.

5. When play is over, the tonearm will automatically return to the arm rest (auto-return) and the turntable will stop rotating.
6. When play is finished, push the power switch to the **"off"** position (⏏).
   Now, secure the tonearm with the arm clamp and attach the stylus protector to the stylus.

**Note:**

- The turntable will stop rotating after a few turns if you happen to push the start/stop button without placing a record on the turntable mat. This has been so designed to protect the stylus tip and is not a malfunctioning of the unit.
- The tonearm will not begin the auto-start function if pressure is applied to the turntable (for example, with the record cleaner) after depression of the start/stop button. When the record cleaner is removed from the record, then the tonearm will move over the record and play will start.
- If you happen to push the start/stop button by mistake, depression of the start/stop button again before the tonearm begins to move will stop the auto-start function.
- As automatic play is not applicable to transparent records, Sono-sheets, and non-standard-size records (other than 17, 25, 30 cm), play those records manually.

## ■ Cueing operation

Both the cueing button (located on the front control panel) and the cueing lever (located on the arm base) are used for cueing control.
Depression of the cueing button interlinks the cueing lever with the up and down movement of the tonearm. The cueing lever, however, can be independently operated manually. They should be used depending on the operating conditions.

**Note:**

- The (▼) indication at the cueing button means that the stylus tip is raised from the disc surface, and (▼) means that the tonearm is lowered so that the tip of the stylus is resting on the disc surface.
- Depression of the cueing button during the up (▼) or down (▼) movement of the tonearm will not cause the tonearm to be lowered or raised.
  The cueing button should be depressed again once the tonearm has completed its up motion (or down motion).
- When you operate the cueing button, be sure to release the arm clamp.
  If you operate the cueing button to raise the tonearm without releasing the arm clamp, the tonearm will ascend; however, in rare cases, the tonearm will not descend even when the cueing button is again pushed.
  In this case, release the arm clamp and push the cueing button, which will cause the tonearm to descend.

## ■ Manual play

1. Push the power switch to the **"on"** position (⏏), set the speed select button to the desired position and remove the stylus protector.
2. Release the arm clamp.
3. Push the cueing button (▼) **(See Fig. 22)**, or lift the cueing lever manually.
4. Move the tonearm over the record.
   The turntable will start to rotate.
5. Push the cueing button (▼), or lower the cueing lever manually. The stylus will then descend onto the record groove and play will start. **(Refer to Fig. 22.)**
6. When play is finished, the tonearm will return to the arm rest automatically (auto-return) and the turntable will stop rotating.

## ■ Repeated play

1. Push the repeat button. **(See Fig. 23.)**
   The LED on the repeat button will light up.
2. Push the start/stop button.
3. As soon as play has finished the tonearm will ascend automatically and return to the lead-in groove to repeat play.

**Note:**

Depress the repeat button once more if the repeat play is to be discontinued.
Depression of the start/stop button during the repeat play will automatically release the repeat assignment, and the tonearm will automatically return to the arm rest.

## ■ How to stop play

Push the start/stop button.
The tonearm automatically returns to the arm rest, and the turntable stops rotating.

**Note:**

The auto-return will not function if the start/stop button is depressed while the stylus tip is raised from the record surface by depressing the cueing button (or by manually raising the cueing lever).

## ■ How to suspend play

Push the cueing button (▼), or lift the cueing lever by hand. The stylus will ascend from the record.

## ■ When you play a 45-rpm record with a large center hole

Place the 45-rpm adaptor on the center spindle. Push the 45 speed select button.

## ■ Stylus illuminator (See Fig. 24.)

This unit is provided with a stylus illuminator for illuminating the stylus tip during play.
By pressing the stylus illuminator switch, the stylus illuminator is raised into position for illuminating the stylustip. When not in use, keep the stylus illuminator lowered through depression.

**Note:**

The switch must be firmly engaged.
Incomplete depression of the switch will not raise the illuminator even though the lamp is lit.

# Adjustments

## ■ Pitch control (fine adjustment of speed) (See Figs. 25 and 26.)

As soon as power is applied to the unit by depressing the power switch (⏏), the LED lamp lights up indicating that the unit is on.
When the pitch control knob is clicked in at the position "0", the regular speed (33-1/3 or 45 rpm) is held, indicating the condition with the green LED lamp.
However, the pitch control feature of this unit allows speed variation in a range of 0~±6%. Proper speed variation can be selected while watching the red LED lamp and the scale reading on the indicator. Please note that the scale reading on the indicator shows only an approximate percentage. If LED lamps light up at two locations (e.g. at positions [2] and [3]), it shows that the pitch variation is in a range of 2 ~ 3%.
When the strobe dots in 4 stages marked at the peripheral edge of the turntable appear to be stationary, variation of individual pitches is shown. **(See Fig. 26.)**
When (1) appears stationary, it shows a +6% pitch variation.
When (2) appears stationary, it shows a +3.3% pitch variation.
When (3) appears stationary, it shows normal turntable speed, 33-1/3 or 45 rpm.
When (4) appears stationary, it shows a −3.3% pitch variation.

**Note:**

The strobe-illumination of this unit employs a strobe-illuminator LED synchronized with the precise quartz frequency.
For fine adjustment of the turntable speed, be sure to effect the adjustment according to the LED illumination.
The LED illumination is not synchronized with fluorescent lamps.

## ■ Adjustment of muting timing (height of arm lift) (See Figs. 27 and 28.)

This unit is fitted with a muting feature which is used to cut off irritating noise caused at the moment the stylus is brought down on or lifted up from the disc surface.
Muting timing can be adjusted by the height of the arm lift, a clearance between the stylus tip and the disc surface while the top of the tonearm is at the **"up"** position (▼), by depressing the cueing switch button. The height of the arm lift was adjusted to a range of 8~13 mm before shipment from the factory. **(See Fig. 27.)** Perform the adjustment in the following manner when adjustment is needed for the cartridge being used.

- To begin with, protect the tip of the stylus with the stylus cover.
- Turn off the power switch (■) so that the turntable should not move.
- The top of the adjust screw is hexagonal.

While holding the arm lift down, turn the adjust screw. Remember to depress the arm lift downwards in turning the adjust screw. **(See Fig. 28.)**

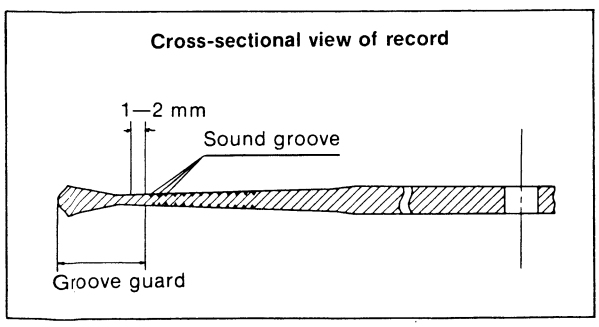
**If recorded sound cannot be reproduced at once after the stylus was lowered on to the disc surface,**
try to adjust the timing by turning the adjust screw counterclockwise, and thus increasing the distance between the stylus tip and the disc surface.
**In case irritating noise is generated when the stylus is lowered on to the disc surface,**
decrease the distance by turning the adjust screw clockwise.

**Note:**
As the adjusting screw has a hexagonal head, be sure to make the adjustment while depressing the arm lift, or the screw will not move freely.
Also be sure that the hexagonal head retracts correctly into the arm lift when the latter is released.

## ■ Adjustment for automatic start position (See Fig. 29.)

Auto-start position (where the stylus tip lowers onto the record surface during automatic play mode) should be adjusted with a record on the turntable platter. If the tip of the stylus does not land at a proper location on the record, it should be adjusted in the following manner. Be sure to use a 30 cm disc for adjusting the auto-start position.

1. Clamp the tonearm to the arm rest.
2. Take the rubber cap off the auto-start position adjustment screw. Then, turn the adjustment screw clockwise or counterclockwise with a screwdriver.
3. If the stylus tip descends onto the sound grooves, the adjustment screw must be turned clockwise.
4. If the stylus tip descends outside the record, the adjustment screw must be turned counterclockwise.
5. The auto-start position must be adjusted so that the tip of the stylus descends 1 to 2 mm from the lead-in groove.




# Notes and maintenance

■ **Do not grasp or hold the tonearm during operation of the automatic mechanism.**

■ **Use utmost care when handling the platter and when placing it on the motor shaft to prevent possible damage to the magnet.**

■ **Do not turn "on" the power supply, with the turntable platter detached.**

■ **When using other headshells, make sure that the headshell configuration is compatible. (See Fig. 30.)**
When other types of headshells are employed, the handle portion of the headshell may strike against the inner upper surface of the dust cover during automatic motion of the tonearm. In such a case, we recommend that the dust cover be left open during play.

■ **Before detaching or attaching the headshell, be sure to turn the power of the amplifier or receiver off.**
Detaching or attaching of the headshell with the volume control turned up may cause damage to the speakers.

■ **Wipe the dust cover and turntable base with a soft, dry cloth.**
Never use any cleaners containing alcohol, benzine or thinner. Use of a chemical dust cloth should also be avoided. Be sure that the dust cover is not exposed to insecticide spray.
To remove stubborn finger prints or grease spots, detach the dust cover and disconnect the AC power plug.
Use a soft cloth slightly moistened with a mild soap and water solution.
Do not wipe the dust cover during play, or the tonearm may be attracted toward the dust cover due to the generation of static electricity.

■ **Dust and dirt should be carefully removed from stylus tip or records.**
Dust and dirt on the stylus tip or record may not only result in deterioration of tone quality, but also cause undue wear of the record and the stylus tip itself.
Special stylus tip brushes and record cleaners can be purchased in most electronic supply houses.

■ **Wipe the headshell terminals from time to time.**
Dust and dirt at the headshell terminals may result in increased **"HUM"** noise or intermittent sound. Use a soft dry cloth to clean the headshell terminals.

■ **Also wipe the prism (protrusion on the turntable platter) with a soft, dry cloth.**

■ **Lubrication (See Fig. 31.)**
Apply 2 or 3 drops of oil once after every 2000 hours of operation.
The time interval is much longer than that for conventional type motors (200—500 hours).
Please purchase original oil. **(Part number is SFWO 010.)**

■ **Do not use a stabilizer since it may lessen the effects of the double floating structure employed in this unit.**

■ **Replacement of stylus (See Fig. 32.)**
**(for set with cartridge)**
The unit is furnished with a diamond stylus.
The life of the stylus differs depending on the conditions of use, but it is recommended that you replace the stylus at the first sign of wear. About 500 hours of use is an approximate standard.
**The replacement stylus for the unit is the EPS-207ED.**

1. Remove the headshell/cartridge from the tubular arm. Hold the stylus assembly with your fingers and withdraw it slantwise, as shown in the picture.
2. Align the new stylus assembly with the square opening of the cartridge main body, and push it into the opening positively as far as it will go.

■ **Transportation of the unit to distant places for removal and the like.**
Pack up the unit in the reverse order to that for unpacking, using the packing materials furnished when the unit was purchased. Should there be no such packing materials, be sure to take the following steps.

- Remove the turntable platter together with the turntable mat, and wrap it up to prevent any damage to them.
- Return the tonearm to the arm rest, and affix if with tape or the like.
- Remove the balance weight and the headshell/cartridge from the tonearm and then wrap them up to avoid any damage to them.
- Wrap up the turntable base with a blanket or soft paper also to prevent any possible damage to it.

# Features

## ■ Total Quartz Locked Continuous Pitch Adjustment ±6%

Quartz-phase-locked control provides rotational accuracy that is not approached by other turntable servo systems. With the large majority of quartz-controlled turntables, however, the quartz servo system must be defeated when speed changes are required (such as for matching musical pitch to an instrument). Technics was the first company to develop a "quartz synthesizer" system which maintained quartz accuracy in pitch-altered modes. This system permitted quartz-controlled speed changes in increments of 0.1%.
Now, with the SL-1600MK2/SL-1610MK2, pitch is variable continuously (analogically) by up to ±6%, under quartz control. Pitch changes are made by turning a knob on the front panel. As this is done, a series of thirteen LED's light to indicate percentage of pitch change—plus and minus 1, 2, 3, 4, 5, and 6%, and exactly on speed. In any case, the unsurpassed accuracy of the quartz system remains in effect.

## ■ Double Isolated Suspension System with TNRC Inner Base

Acoustic feedback is a potential problem whenever the turntable is located in the same room as the speakers, as is the case in nearly all home systems. Technics developed a double isolated suspension system to drastically reduce the potential for feedback. The outer base is made from diecast aluminum and is supported by a carefully tuned set of isolators. The inner base which supports the all-important platter, motor and tonearm base, is made from our heavy, anti-resonant "TNRC" material (**T**echnics **N**on-**R**esonance **C**ompound). This inner base is supported by a second set of isolators. Altogether, this double suspension makes it very unlikely that you'll ever encounter a feedback problem. Even the platter is doubledamped, with a specially fabricated rubber mat placed on the underside of the turntable as well as the top.

## ■ Fully-Automatic Tonearm Action with Micro-Computer Control and Muting Circuit

A micro-computer governs and controls all tonearm functions—auto-start, auto-stop, auto-return, auto-repeat and double cueing control. You'll discover that the automatic operation of the tonearm is so quiet that you'll almost have to look at it to know it's moving. Technics uses mechanically quiet, precision-molded, rugged synthetic parts to avoid deterioration. The result is smooth virtually noise-free operation. An automatic muting circuit cuts off output from the cartridge whenever the arm is picked up or set down either by the automatic mechanism or the cueing control. This avoids irritating shock noises.

## ■ Automatic Disc Size Sensing and Repeat-Play Control with Infrared Sensor

With the SL-1600MK2/SL-1610MK2, disc size selection (i.e. 12", 10", 7") is made automatically. An invisible infrared ray is generated from the underside of the platter. Through three small openings in the platter, it reaches a sensor installed in a pole near the tonearm base.
The record on the turntable mat blocks a portion of the infrared, and from this the size of the record is determined. The micro-computer mentioned above handles the information and causes the tonearm to descend at the appropriate point. If there is no record on the platter when the "start" switch is pushed, the tonearm will not move, so accidental operation is impossible. In addition, the repeat action of the tonearm is improved over our past designs. If you operate the turntable in a repeat-play mode, the tonearm will return to the lead-in grooves and descend rather than going back to the tonearm rest as in past models.

## ■ All Front-Panel Controls

Operational convenience is enhanced by putting all controls, even the cueing control and LED display, in-line on the front panel. The control buttons are precision-designed to require a moderate but definite amount of pressure for activation. This design gives a sense of positive control and minimizes the possiblility of its accidental activation.

## ■ High-Sensitivity, Low Mass Gimbal Suspension Tonearm

The highly sensitive tonearm suspension features a genuine "gimbal" design, the rotational center of which is precisely defined at a single point. Bearings are finished to a tolerance of ±0.5 microns. This and the close-proximity of the bearings to the pivot center, result in an effective friction of 7 mg (0.007 grams) for both horizontal and vertical movement. Add to this the low, 12-gram effective mass of the tonearm (including the headshell) and you have a tonearm compatible with the wide range of compliances found in today's cartridges.

## ■ Quartz Oscillator-Controlled Strobe Illuminator with Four Indication Lines

A quartz controlled LED strobe illuminates four lines of stroboscope markings on the platter edge. These markings correspond to percentages of speed change: +6%, +3,3%, 0% (standard speed) an -3%. When the line of markings seem to stand still, this means that the platter is rotating at precisely the indicated speed.

## ■ Stylus Illuminator for Low-Light Conditions

## ■ Other Fine Features

- High torque for fast starts
- Excellent load characteristics for steady speed
- Helicoid tonearm height adjustment
- Electronic braking system brings platter to a quick stop.
- Prism strobe illuminator, governed by quartz oscillator rather than potentially unstable AC line frequency.
- Soft-touch switches provide positive control while minimizing chances of accidental operation.
- Technics integral rotor/platter structure with full-cycle detection FG.

# Specifications

## ■ General

| | |
|---|---|
| **Power supply:** | ~110-120/220-240V, 50 or 60 Hz |
| **Power consumption:** | 18.5 W |
| **Dimensions:** | 45.3 × 14.9 × 39.9 cm |
| **(W×H×D)** | (17-27/32" × 5-7/8" × 15-45/64") |
| **Weight:** | 10 kg (22 lb.) |

## ■ Turntable section

| | |
|---|---|
| **Type:** | Quartz direct drive<br>Automatic turntable<br>(Auto start<br>Auto return<br>Auto stop<br>Repeat play) |

| | |
|---|---|
| **Drive method:** | Direct drive |
| **Motor:** | Brushless DC motor |
| **Turntable platter:** | Aluminum die-cast<br>Diameter 33.2 cm (13-5/64")<br>Weight 2 kg (4.4 lb.) |
| **Turntable speeds:** | 33-1/3 rpm and 45 rpm |
| **Pitch control:** | ±6% range |
| **Starting torque:** | 1.5 kg·cm (1.3 lb·in) |
| **Build-up characteristics:** | 0.7 s. from standstill to 33-1/3 rpm |
| **Braking system:** | Electronic brake |
| **Speed change due to load torque:** | 0% within 1.0 kg·cm (0.87 lb·in) |
| **Wow and flutter:** | 0.01% WRMS*<br>0.025% WRMS (JIS C5521)<br>±0.035% peak (IEC 98A Weighted) |

*This rating refers to turntable assembly alone, excluding effects of record, cartridge or tonearm, but including platter. Measured by obtaining signal from built-in frequency generator of motor assembly.

| | |
|---|---|
| **Rumble:** | −56 dB (IEC 98A Unweighted)<br>−78 dB (IEC 98A Weighted) |

## ■ Tonearm section

| | |
|---|---|
| **Type:** | Universal |
| **Effective length:** | 230 mm (9-1/16") |
| **Arm height adjustment range:** | 0—6 mm |
| **Overhang:** | 15 mm (19/32") |
| **Effective mass:** | 12 g (without cartridge) |
| **Tracking error angle:** | Within 2° 32' at the outer groove of 30 cm (12") record<br>Within 0° 32' at the inner groove of 30 cm (12") record |
| **Offset angle:** | 22° |
| **Friction:** | Less than 7 mg (lateral, vertical) |
| **Stylus pressure adjustment range:** | 0—2.5 g |
| **Applicable cartridge weight range:** | 6—10 g<br>13.5—17.5 g (including headshell) |
| **(with auxiliary weight):** | 9.5—13 g<br>17—20.5 g (including headshell) |
| **(with shell weight):** | 3.5—6.5 g<br>11—14 g (including headshell) |
| **Headshell weight:** | 7.5 g |

## ■ Cartridge section

**(for set with cartridge)**

| | |
|---|---|
| **Model No.** | EPC-207C |
| **Type:** | Moving magnet |
| **Frequency response:** | 20 Hz to 25 kHz<br>20 Hz to 15 kHz ±2 dB |
| **Output voltage:** | 3 mV at 1 kHz<br>5 cm/s. zero to peak lateral velocity<br>[8.5 mV at 1 kHz, 10 cm/s. zero to peak 45° velocity (DIN 45500)] |
| **Channel separation:** | 25 dB at 1 kHz |
| **Channel balance:** | Within 2 dB at 1 kHz |
| **Compliance (dynamic):** | $10 \times 10^{-6}$ cm/dyne at 100 Hz |
| **Stylus pressure:** | 1.75 ±0.25 g (17.5 ±2.5 mN) |
| **Load impedance:** | 47 kΩ to 100 kΩ |
| **Weight:** | 5.6 g (cartridge only) |
| **Replacement stylus:** | EPS-207ED<br>(Elliptical stylus) |

Specifications subject to change without notice.
Weight and dimensions shown are approximate.

# For longer and safer use of this unit

In order to receive the best service from this unit, and for the safest operation, carefully read the following information.

■ **Power source**

**It is very dangerous to use this unit at a voltage which is different from the rated voltage.**

There is danger of combustion if the unit is connected to a power source which is different from the rated voltage. Be very careful concerning this point.

**Direct current cannot be used.**

There are some places, such as ships, where direct current is used as the power source. Before connecting the unit, confirm the power source.

■ **Connection of power cord**

Be sure to never touch the power cord with wet hands because there is danger of electric shock. This is true, of course, of all electric equipment.

**Do not pull the power cord.**

Never pull the power cord to disconnect it. Always pull the plug only.

■ **Location of unit**

Choose a place which is not in direct sunlight.
Select a place which will assure good ventilation.

■ **Never place heating equipment nearby.**

Be sure to keep stoves and other sources of heat away from this unit, because heat radiated by such equipment may cause deformation of plastic parts or damage the cabinet, or, at worst, cause a fire.

■ **Especially for families with children**

**Take care that no small items, such as metal objects, are put inside this unit.**

In addition, children should be especially warned not to put anything into the ventilation holes, such as toys or a screwdriver, because these things may cause an electric shock or result in a malfunction of the unit.

■ **If water spills on the unit**

If water should happen to spill on the unit, from an overturned vase for example, there is danger of fire or electric shock. Disconnect the power plug from the electric outlet immediately, and contact the store from which the unit was purchased.

■ **Reconstruction can cause accidents**

Absolutely never try to remodel, reconstruct or repair this unit yourself. Do not attempt to touch any internal parts because to do so may result in an electric shock or other accident.

■ **Be sure the power is off.**

After you have finished using this unit, check once more to be sure that the power is off. If the unit is left with the power on for a long period of time, it may not only be damaged, thus shortening its useful life, but may also lead to a dangerous accident.